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Greenpoint, NY: A Case Study

By Caufield & James



First Methane Vapor Intrusion Case: Port of Oakland

The History of the Port of Oakland

- ❖ 34 Acres, bounded on the west by Oakland Outer Harbor and on the north and south by Port berths
- ❖ 1924-1966 General Petroleum Corporation
- ❖ 1966-1979 Mobil Oil Corporation
- ❖ Petroleum Products stored at the site included: diesel fuel, leaded and unleaded gasoline, premium gasoline and gasoline additives, heating oil, and other heavy oil products.

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Site Hydrogeology

- ❖ Underlain by hydraulic fill: Bay Muds, and sand zones (fine to medium sand interbedded with silty sand, clayey sand and sandy silt)
- ❖ Fill extends from pavement to 15-20 feet below the surface
- ❖ Depth of groundwater varies from approximately 5.5 to 10.9 feet bgs.

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Remedial Investigation

- ❖ Primary pollutants found in the subsurface are total petroleum hydrocarbons as gasoline and their related constituents.
- ❖ In 1980, estimated 300K-400K gallons of free product beneath the site.
- ❖ In 1987, total petroleum hydrocarbon concentration up to 56,000 ppmv in soil gas
- ❖ In 1997, methane concentration in the vadose zone was as high as 47%
- ❖ July 21, 1999 Order issued by CRWQCB

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Workplan & Risk Assessment

- ❖ Delineate the horizontal extent of the methane plume
- ❖ Abiotic indicators of anaerobic biodegradation of petroleum hydrocarbons
- ❖ Sampling and analysis procedures for collection
- ❖ Methane Risk Assessment
 - ❖ Potential explosive dangers due to migration of methane gas into trenches during future construction activities and removal of surficial cap.

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GREENPOINT: New York Skyline (by Bernard Ente)

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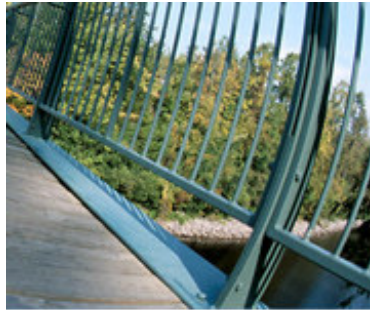
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History of Greenpoint

- ❖ 1866-petroleum refining in Greenpoint began
- ❖ 1870-over 50 refineries operated in the area
- ❖ 1892-consolidated to form Standard Oil Trust, eventually becoming Mobile Oil
 - ❖ 1.4 mil gallons a day capacity
- ❖ 1950-Underground explosion caused by gasoline leaking into the sewers
- ❖ 1966-Main refinery ceased operations, portions sold, and some bulk handling/storage remained
- ❖ 1978-US Coast Guard notices large plume of oil flowing out of the banks of the creek.

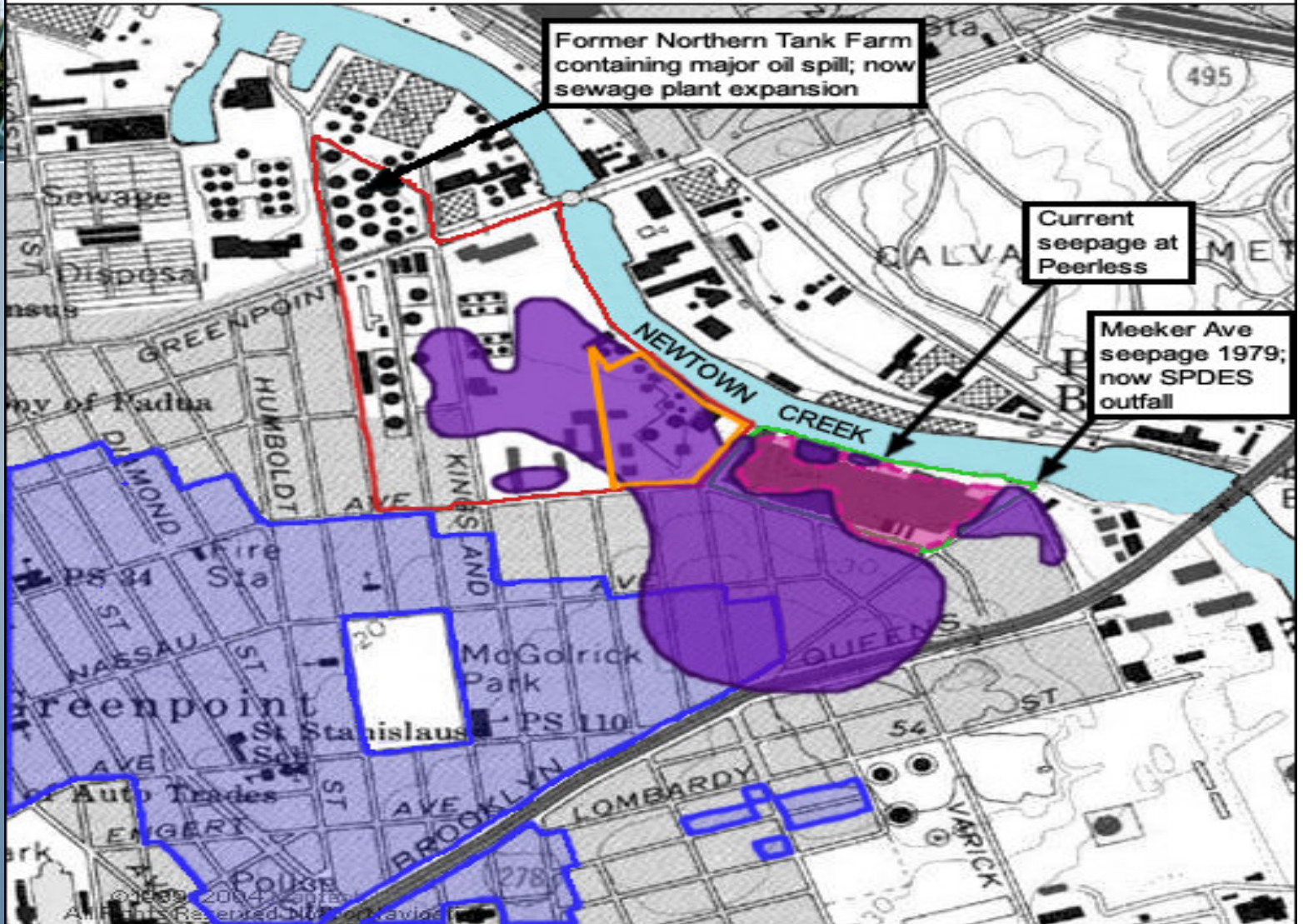
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THE GREENPOINT OIL SPILL

(c) 2004 Riverkeeper Inc.



- Current Peerless Importers, former Texaco Terminal
- Historic Standard Oil Property
- Nearby residential areas
- Amoco property boundaries
- Newtown Creek
- 2005 mapping of free product, according to ExxonMobil
- Estimated potential additional free product area (dotted border)

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Extent of Plume

- ❖ An estimated 17-30 million gallons over 55 acres.
- ❖ 50% to 150% MORE Petroleum Products than the Exxon Valdez disaster
- ❖ Product on the top of the water table ranged from inches to 20 feet in depth.
- ❖ Newtown Creek is one of the most polluted waterways in the U.S.

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Remediation and Litigation I.

- ❖ 1990-consent orders were entered into
- ❖ 1995-monitoring wells were installed
- ❖ May 2004-RCRA suit was filed
- ❖ July 2005, Riverkeeper, independent environmental organization, showed elevated levels of benzene and methane.
- ❖ September 2005, Coast Guard Marine Transportation Act was passed
 - ❖ Included a provision to determine the health effects from the oil pollution pushed through by Queens/Brooklyn representative. (D-Weiner)

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Remediation and Litigation II

- ❖ September 16, 2005, NYDEC approved a workplan sample soil to determine if vapors were impacting indoor air.
- ❖ October 2005-suit filed by Girardi & Keese and Caufield & James citing the direct danger from the gases released as the oil degrades.
 - ❖ Negligence, Nuisance, Trespass, Strict Liability under NY Navigation Law
- ❖ December 2005, Erin Brockovich briefed potential plaintiffs from the Greenpoint area.

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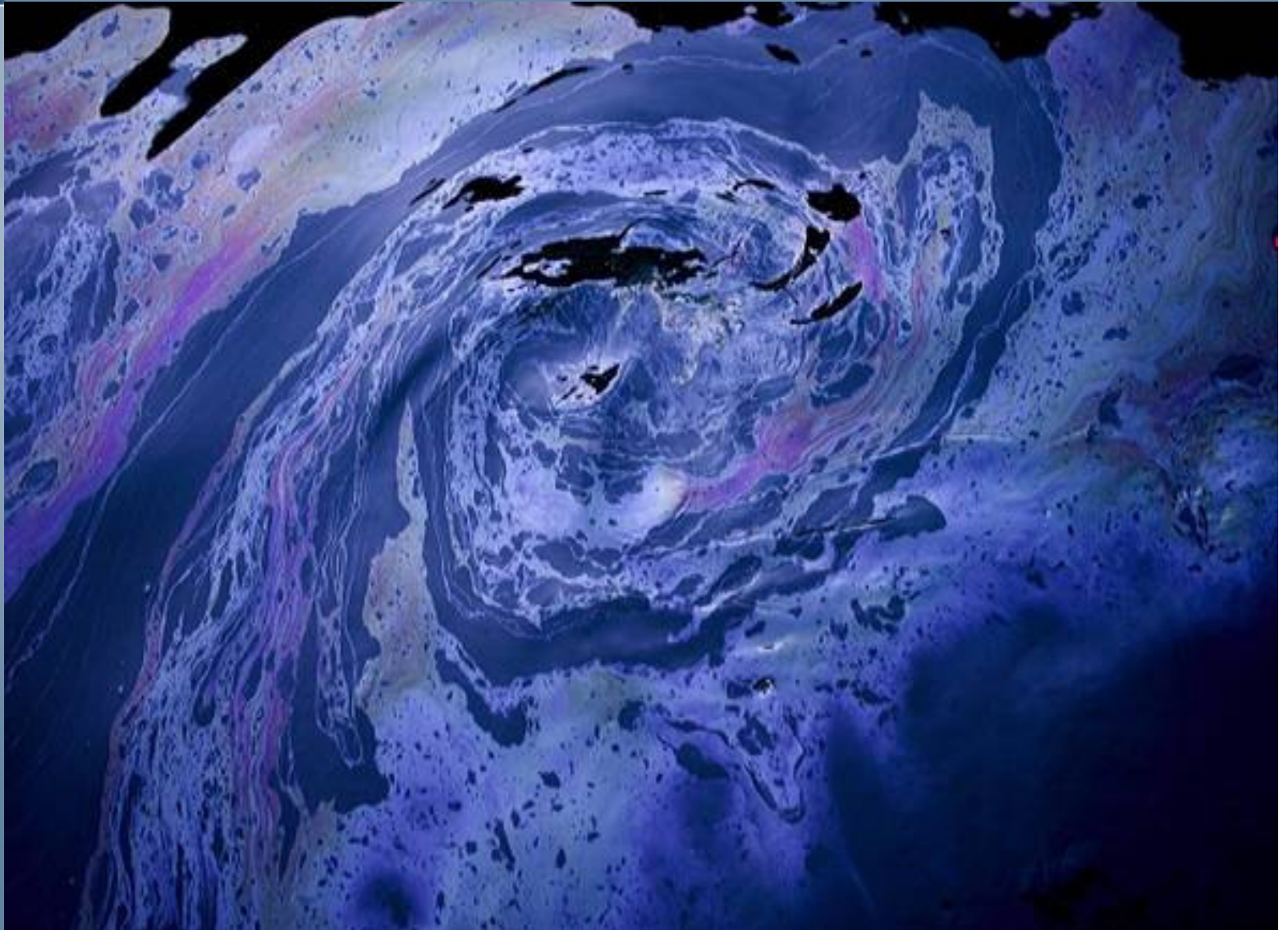
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Blue Swirl Taken On Newton Creek (by Stephen Wilkes)

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CONCLUSION

Lessons

- ❖ Don't wait 30 plus years to cleanup contamination.
- ❖ If you have free petroleum product, even floating on brackish groundwater, test for methane.
- ❖ Consider the potential that the methane problem may worsen by extracting the free product.
- ❖ Involve the community and explore the risks to surrounding community.
- ❖ The legal landscape is continuing to change regarding the generation of gases from contaminated soil and groundwater. As a result of lessons being learned at places like Greenpoint, expect future regulatory changes and scrutiny of similar problems.
- ❖ Be proactive, not reactive.

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